

Amendments to the Claims

1. (Currently Amended) A single sideband (SSB) mixer, comprising:

a first mixing portion which receives a ~~non-phase-shifted~~ first input signal and a ~~non phase-shifted~~ second input signal, multiplies each of the first and second input signals by a non phase-shifted local IF (intermediate frequency) signal, and outputs a first output signal and a second output signal;

a band-pass filter which passes upper sideband signal of the first output signal ;

a second mixing portion which receives the band-passed signal and the second output signal, multiplies each of the band-passed signal and the second output signal by an non phase-shifted LO (local oscillating) signal, and outputs a third signal and a fourth signal: and

an operating portion which performs a predetermined operation on the third and fourth signals to output a signal having the same frequency as the LO signal.

2. (Previously Presented) The SSB mixer of claim 19, further comprising a variable gain amplifier, operatively connected between the second and fourth mixers, for adjusting the gain and phase of signals output from the second mixer.

3. (Previously Presented) The SSB mixer of claim 19, further comprising means for generating the local IF signal and the LO signal.

4. (Previously Presented) The SSB mixer of claim 19, wherein the operating portion is a subtraction device.

5. (Canceled)

6. (Withdrawn) The SSB mixer of claim 20, further comprising a variable gain amplifier, operatively connected between the second and fourth mixers, for adjusting the gain and phase of the signals output from the second mixer.

7. (Withdrawn) The SSB mixer of claim 20, further comprising means for generating the

local IF signal and the LO signal.

8. (Withdrawn) The SSB mixer of claim 20, wherein the operating portion is an adding device.

9. (Withdrawn) A SSB (single sideband) mixer, comprising:

a first mixer which multiplies an input IF (intermediate frequency) signal by a local IF signal having the same frequency as the input IF signal;

a low pass filter which passes a base band signal output from the first mixer; and

a second mixer which multiplies the base band signal by a LO (local oscillating) signal.

10. (Withdrawn) The SSB mixer of claim 9, further comprising means for generating the local IF signal and the LO signal.

11. (Withdrawn) The SSB mixer of claim 9, wherein the second mixer outputs a signal having the same frequency as the LO signal.

12. (Currently Amended) A method of extracting a single sideband (SSB) signal, comprising:

multiplying a ~~non phase-shifted~~ first input signal and a ~~non phase-shifted~~ second input signal by a non phase-shifted local IF (intermediate frequency) signal to output a first output signal and a second output signal;

band-pass filtering an upper sideband signal of the first output signal:

multiplying the upper sideband signal and the second output signal by a non phase-shifted ~~an~~ LO (local oscillating) signal to output a third signal and a fourth signal; and

processing the third and fourth signals to output a signal having the same frequency as the LO signal.

13.-16. (Canceled)

17. (Withdrawn) A method of extracting a single sideband (SSB) signal, comprising the steps of:

- (a) multiplying an input IF (intermediate frequency signal) signal by a local IF signal having the same frequency as the input IF signal to generate a plurality of signals;
- (b) extracting a base-band signal from the plurality of signals generated in step (a); and
- (c) multiplying the base-band signal by a LO (local oscillating) signal and outputting a single frequency signal.

18. (Withdrawn) The method of claim 17, wherein the single frequency signal obtained in step (c) comprises the LO signal frequency.

19. (Previously Presented) The SSB mixer of claim 1, wherein the first mixing portion comprises a first mixer and a second mixer whose input signals are an input IF signal having the same frequency as the local IF signal and wherein the second mixing portion comprises a third mixer and a fourth mixer whose input signals are the band-passed signal and the second output signal, respectively.

20. (Withdrawn) The SSB mixer of claim 1, where the first mixing portion comprises a first mixer and a second mixer whose input signals are an input IF signal and an input IF signal but opposite in phase and wherein the second mixing portion comprises a third mixer and a fourth mixer whose input signals are the band-passed signal and the second output signal, respectively.

21. (Previously Presented) The method of claim 12, wherein the first and second input signals are an IF signal having the same frequency as the local IF signal.

22. (Withdrawn) The method of claim 12, wherein the first input signal is an IF signal having the same frequency as the local IF signal and the second input signal is an IF signal having the same frequency as the local IF signal but opposite in phase.